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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/402,362	10/04/99	VALIX	M 23999

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EXAMINER

MADSEN, R

ART UNIT	PAPER NUMBER
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1761

DATE MAILED:

08/18/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

**Office Action Summary**

Application No.

09/402,362

Applicant(s)

VALIX, MARJORIE GAN

Examiner

Robert Madsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 recites the limitation "said catalyst" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 14 depends on claim 10 (which depends on claim 2) and neither claim 10 nor claim 1 (on which claim 10 depends) includes a catalyst. For examination purposes, examiner will understand claim 14 to be dependent on claim 13 which does include a catalyst.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Synosky et al. (H1241) in view of Grimm, III (US 4071614)

Regarding 1 and 17, Synosky et al. teach an insoluble portion of chewing gum comprising up to 30% wax (Column 5, lines 32-40), 5-95% elastomers that including polyvinyl alcohol (Column 4, line 64 to Column 5, line 4), 0.5 to 40% softeners which include mixtures of triglycerides and fatty acids (Column 5, lines 52-63). Synosky et al. further teach the soluble portion of the chewing gum comprises additional softeners of

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lecithin, or polar lipids (0.5 to 15.0%). Additional bulk sweeteners including sugar alcohols may also be added to the total gum composition from 20 to 80% and additional flavoring agents, or flavor oils, may be added up to 10% of the total chewing gum composition (Column 6 lines 22-30, 35-45, and 60-63). Thus, Synosky teaches a range of a food grade wax composition (chewing gum) which comprises 6.2 to 11% wax esters, 0-3% tri-glycerides, 1.8 to 44.5% alcohols, and free fatty acids and polar lipids of 36.8 to 87.2%, and 2.8 to 9.5% flavoring oils, but is silent in teaching 2.8 to 9.5% aldehydes.

Grimm, III is relied on as evidence of flavors combined with a food grade wax composition may be in the form of aldehydes or flavors (Column 2, line 65 to column 3, line 15).

Therefore, it would have been obvious to include 6.2 to 11% wax esters, 0-3% tri-glycerides, 1.8 to 44.5% alcohols, and free fatty acids and polar lipids of 36.8 to 87.2% in a food grade wax composition since Synosky et al. teach these components in a broader range. It would have been further obvious to include an additional 2.8 to 9.5% aldehydes in the food grade wax composition of Synosky et al. since one would be substituting one known form of flavor for another in a food grade wax composition.

Claims 2-5,8,9,12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa et al. (JP 07011284A, Derwent and JPAB abstracts) in view of Arai et al. (JP06200289A, Derwent and JPAB abstracts), Whyte et al. (US 2683092), and Rieger et al. (US 4064149).

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Regarding claims 2 and 3 the Derwent abstract of ('284) teaches a method of preparing a high purity and high yield wax composition from crude sugar cane wax (i.e. sugar cane filter cake). Reference ('284) teaches heating a solution of crude wax with a lower alcohol (i.e. ethanol as recited in claim 3) at least at the boiling point of the alcohol, allowing phase separation, separating the upper phase while hot, cooling the separated phase to crystallize the wax, and finally separating the crystallized wax from the solvent. However, ('284) is silent in teaching repeating the steps of heating, phase separation, and cooling to crystallize wax, and the reference is silent in teaching further oxidizing the molten wax (at 90°C to 140°C) and removing any resulting peroxide products.

The Derwent abstract of (JP06200289A) also teaches preparing wax from a crude sugar wax, and further teaches the conventionality of repeating the steps of heating, phase separation to isolate the crystallize wax (noted as Process I and Process II).

Whyte et al. are relied on as evidence of the conventionality of heating refined sugar cane wax, to eliminate color and odor (i.e. improve purity), with oxidizing material between 90°C and 140°C, or from 80°C to 155°C (Column 1 line53 to column 2, line 12).

Rieger et al. are relied on as further evidence of heating a sugar cane wax, after treating with a solvent, oxidizing the wax with an oxidizing material to eliminate odor (Column 1, lines 53-67, Claims 1-3, Column 4, lines54-60). Air or any oxygen liberating gas is used as the oxidizing material (Column 3, lines 58-60). Additionally, Rieger et al.

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teaches the gas current may be an oxidizing agent or inert gases to remove substances to improve the wax quality (Column 4, lines 5-18).

Therefore, it would have been obvious to repeat the steps of heating and phase separation in the method of ('284) until all the pitch has been removed since it is well known in the art to repeat the heating and phase separation steps to purify a wax and one would be substituting one known method of purifying a wax for another. It would have been further obvious to include oxidizing the molten wax at a temperature of 90°C to 140°C and heat with an inert gas to remove intermediate products since one would be substituting one means for improving wax purity for another.

Regarding claims 4 and 5, ('284) teaches a the ratio of crude wax to solvent is 1:8 (i.e. 100g filter cake per 800 ml of ethanol), but is silent in teaching ratios greater than 1:8, such as up to 1:20, as recited in claim 4 or, 1:9 as recited in claim 5. The Derwent abstract of ('289) is relied on as teaching the conventionality of using any ratio from 1:3 to 1:20 (i.e., 3-20 fold amounts). Therefore, it would have been obvious to include any ratio of wax to solvent from 1:8 to 1:20 since one would be substituting one acceptable ratio of wax to solvent for another for the same process: purifying wax from crude sugar cane wax.

Regarding claim 8, ('284) teaches separation of the crystallized wax from the solvent is done by filtration, but is silent in teaching centrifugation. Reference ('289) teaches the conventionality of separating the wax from the solvent by centrifugation (See JPAB Abstract), or any liquid solid separation method (See Derwent Abstract). Therefore, it would have been obvious to include any solid-liquid separation method,

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such as centrifugation, to the method of ('284) since one would be substituting one known means of solid-liquid separation for another in the same process.

Regarding claim 9, ('284) teaches a process for preparing a wax composition, but is silent in teaching repeating the steps of heating, phase separation to isolate the crystallize wax. However, as discussed above in the rejection of claim 2, ('289) teaches repeating those steps. To repeat the steps greater than 2 times, as taught by ('289) is an obvious result effective variable of the desired yield of wax or purification, since it is well known to repeat solid-liquid separations until a desirable amount of the purified component is attained.

Regarding claims 12, 13, and 14, ('284) teaches a process for preparing a wax composition, but is silent in teaching an oxidizing material (such as air, oxygen, or mixtures of oxygen, nitrogen, and ozone) as recited in claim 12, a catalyst as recited in claim 13, and a catalyst such a borate or resinate of cobalt or manganese, ferrous salts, or Fenton's reagent as recited in claim 14. However, as discussed in the rejection of claim 1, Rieger et al. teach heating a sugar cane wax, after treating with a solvent, with an oxidizing material such as air or any oxygen liberating gas. Rieger et al. further teach a catalyst such as cobalt or manganese to shorten the reaction time (Column 4, lines 37-48). Therefore, it would have been obvious to further include an oxidizing material such as air or any oxygen liberating material, with a catalyst comprising a cobalt or manganese compound, since it is conventional to oxidize the wax for purification and to include a catalyst to shorten the reaction time. And one is replacing one known means of wax purification for another.

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Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa et al. (JP 07011284A, Derwent and JPAB abstracts) in view of Arai et al. (JP06200289A, Derwent and JPAB abstracts), Whyte et al. (US 2683092), and Rieger et al. (US 4064149) as applied to claim 2 above, further in view of Shimizu et al. (JP406200288A).

Regarding claims 6 and 7, ('284) teaches a process for preparing a wax composition, but is silent in teaching the initial heating of the solvent and crude wax lasts 5 to 60 minutes, as recited in claim 6, or about 30 minutes, as recited in claim 7. The JAPB abstract of ('288), however, teaches the conventionality of heating a solvent with crude sugar cane extract to produce sugar cane wax for a time ranging from 6 minutes to 10 hours. Therefore it would have been obvious to heat the solvent with the crude wax for any time between 5 and 60 minutes since one would be substituting one known heating time for a solvent and crude sugar cane for another to derive pure sugar cane wax.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa et al. (JP 07011284A, Derwent and JPAB abstracts) in view of Arai et al. (JP06200289A, Derwent and JPAB abstracts), Whyte et al. (US 2683092), and Rieger et al. (US 4064149) as applied to claim 2 above, further in view of Haines et al. (US 2908702)

Regarding claim 10 and 11, ('284) teaches a process for preparing a wax composition, but is silent in teaching a means of purifying the wax after treatment with a



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solvent by heating the crystallized wax using a non-oxygen containing gas as recited in claim 10, such as nitrogen as recited in claim 11. However, Haines et al. teach the conventionality of removing a solvent from a wax, for purification, by heating the wax with nitrogen, i.e. nitrogen stripping (Column 2, lines 50-62). Therefore, it would have been obvious to include heating the crystallized wax in the presence of nitrogen to remove the solvent since one would be substituting one known means of removing solvent with another after treating a wax with a solvent.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa et al. (JP 07011284A, Derwent and JPAB abstracts) in view of Arai et al. (JP06200289A, Derwent and JPAB abstracts), Whyte et al. (US 2683092), and Rieger et al. (US 4064149) as applied to claim 2 above, further in view of Noda Wax (JP02115299A).

Regarding claim 15, ('284) teaches a process for preparing a wax composition, but is silent in teaching heating the solvent with activated carbon. However, the Derwent abstract of ('299) teaches dissolving crude wax with an organic solvent and treating with activated carbon to remove color, a means of improving purity. Therefore, it would have been obvious to include using activated carbon with a solution of heating solvent and wax at any point in the process since one would be substituting one known method of improving purity of a wax for another. Furthermore, to include any particular ratio of wax to carbon would have been an obvious result effective variable of the desired level of purity of final wax and time exposed to the carbon.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa et al. (JP 07011284A, Derwent and JPAB abstracts) in view of Arai et al. (JP06200289A, Derwent and JPAB abstracts), Whyte et al. (US 2683092), and Rieger et al. (US 4064149) as applied to claim 2 above, further in view McLoud (US 245641) and Wilder (US 245661)

Regarding claim 16, ('284) teaches a process for preparing a wax composition, but the reference ('284) is silent in teaching further heating the crystallized wax with a lower alcohol (at the boiling point of the alcohol) for 30 to 60 minutes, allowing phase separation, allowing the separated upper phase to cool and crystallize the wax, heating the wax in absence of solvent for 15 minutes to 3 hours, and repeating this entire process until the degree of decolorization is achieved.

McLoud teaches using a lower alcohol to separate resinous material, a colored portion, from a hard wax fraction derived from crude sugar cane wax (Column 1, lines 22-39). The lower alcohol and wax fraction are heated together at a temperature sufficient to keep the hard wax fraction in solution, which may include being at the boiling point temperature of the alcohol. As a result of heating, two immiscible liquids form and they are separated by any means, including decanting, in a batch or continuous method. The upper phase, or light layer, comprises the desired wax fraction and is separated from the other phase. The lower alcohol is removed continuously from the wax fraction by distilling by a conventional evaporating means.

Wilder teaches a means of evaporating solvent from the hard wax fraction of sugar cane by first cooling the upper phase of a 2 phase wax/lower alcohol mixture, removing the crystallized wax, and heating the wax to drive off the solvent (Example 1).

Therefore, it would have been obvious to further include the steps of decolorization as recited in claim 16 since McLoud teaches the conventionality of removing the colored from the hard wax fraction of crude sugar cane wax and one would be substituting one known purification method for another. To select any particular time for heating the wax with the alcohol (as recited in (vii) of claim 16) would have been an obvious result effective variable of the amount of alcohol used to keep the wax in solution. To select any particular time for heating the wax in absence of the solvent (as recited in (x)) would have been an obvious result effective variable of the amount of alcohol originally used and the temperature used to heat, i.e. more alcohol requires more time and higher temperatures require less time. Furthermore, to repeat the entire decolorization process (as recited in x) would have been an obvious result effective variable of the desired final color.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Madsen whose telephone number is (703)305-0068. The examiner can normally be reached on 7:30AM-4:00PM, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette can be reached on (703)308-0756. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703)305-3599 for regular communications and (703)305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

R. Madsen  
August 7, 2000

*Gabrielle Brouillette*  
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*8/9/00*